

Algebra Cheat Sheets

Algebra Cheat Sheets provide you with a tool for teaching your students note-taking, problem-solving, and organizational skills in the context of algebra lessons. These sheets teach the concepts as they are presented in the Algebra Class Software.

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To combine terms, the variables must be identical.

1. Put the terms in alphabetical order.
2. Combine each set of like terms.
3. Put the answers together.

Combining Like Terms – Examples

$$3a + 4b + 2c + 5a - 6c - 2b$$

1. Put the terms in alphabetical order:

$$3a + 5a + 4b - 2b + 2c - 6c$$

2. Combine each set of like terms:

- $3a + 5a = 8a$
- $4b - 2b = 2b$
- $2c - 6c = -4c$

3. Put the answer together:

$$8a + 2b - 4c$$

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Writing Expressions

Look for 'clue' words:

- 1. For the clue words, 'the product of' place the constant before the variable. Do not use a sign.**
- 2. The clue words 'more than' and 'less than' indicate inverted order.**
- 3. If there are no clue words, write the expression in the order that the words appear.**

Writing Expressions – Examples

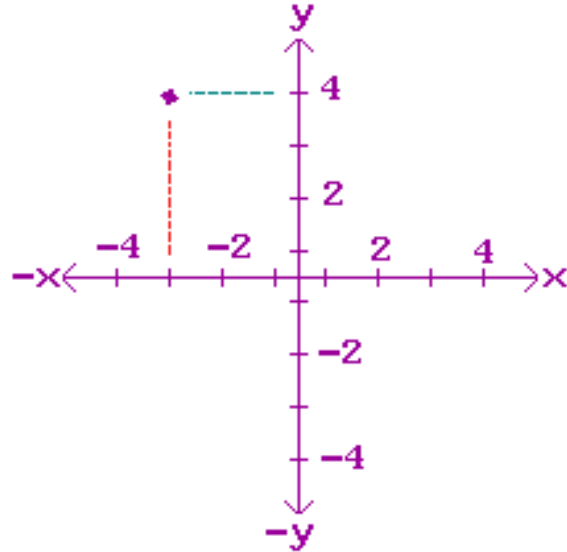
1. The product of 4 and x The product of y and 5	$4x$ $5y$
2. x more than three thirteen less than y	$3 + x$ $y - 13$
3. the sum of ten and x the difference between y and 4	$10 + x$ $y - 4$

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Points on the Coordinate Plane

Locating Points:

- Step 1.** Find the location on the x-axis. It is -3 .
- Step 2.** Find the location on the y-axis. It is 4 .
- Step 3.** Write the location in this form (x, y) .
The point is $(-3, 4)$.



Plotting points:

Plot the point $(5, -3)$ on the coordinate plane.

- Step 1.** Begin at point $(0, 0)$. Move 5 to the right (on the x-axis) since 5 is positive.
- Step 2.** Move 3 down since -3 is negative.
- Step 3.** Plot the point.

Notes – Points on the Coordinate Plane

- ◆ Use graph paper.
- ◆ Begin by marking the x-axis and y-axis as shown in the diagram above.

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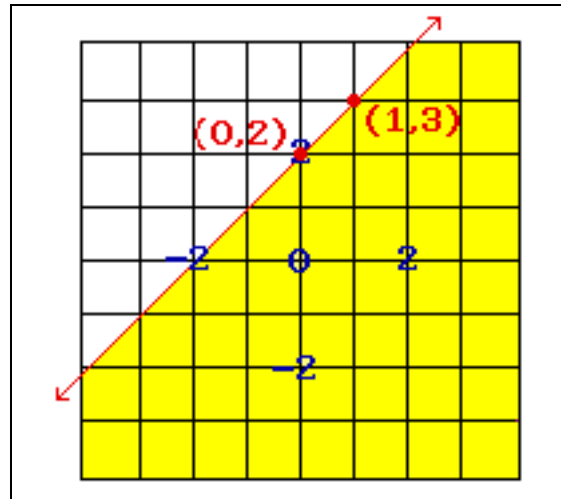
Graphing Inequalities

- Step 1.** Plot the y-intercept.
- Step 2.** Use the slope as the rise, and 1 as the run.
Count the rise and run to find another point.
- Step 3.** Determine what kind of a line will connect the points. (Use a dotted line for $<$ or $>$; use a solid line for \leq or \geq .)
- Step 4.** Shade above the line for greater than ($>$), and below the line for less than ($<$).

Example – Graphing Inequalities

$$y \leq x + 2$$

- Step 1.** Substitute '0' for x;
 $y = 2$. Enter x and y
on the first line.
- Step 2.** Substitute '1' for x;
 $y = 3$. Enter these
numbers on the
second.
- Step 3.** Plot the two points,
(0, 2) and (1, 3) then
draw a solid line
between them.
- Step 4.** Shade below the line
because the sign is \leq .



***Algebra Cheat
Sheet 25***

***Multiplying
Monomials***

- ◆ To multiply monomials, add the exponents of the same variables.

Example – Multiplying Monomials

$$(a^3 b^5 c^8)(a^2 b^7 c^1)$$

Step 1. Multiply the a's	$(a^3)(a^2) = a^5$
Step 2. Multiply the b's	$(b^5)(b^7) = b^{12}$
Step 3. Multiply the c's	$(c^8)(c^1) = c^9$
Step 4. Put them together:	
$(a^3 b^5 c^8)(a^2 b^7 c^1) = a^5 b^{12} c^9$	